CURRENTS IN THE BOSPHORUS.

CAPTAIN MAKAROF of the Russian navy has given an account, in the Sapieski of the academy at St. Petersburg, of his observations on the currents of the Bosphorus, made between November, 1881, and August, 1882, which reaches us through the highly valued *Annalen der Hydrographie* of the German admiralty. The surface current, from the Black Sea to the Sea of Marmora, follows the windings of the strait, with occasional backset eddies near the shore: its velocity averages two knots an hour, and reaches a maximum of four knots. The velocity has a maximum in summer corresponding to the higher level of the Black Sea in that season and a faint maximum about noon, supposed to be due to the diurnal increase of the north-east wind. The undercurrent carries the denser water of the Mediterranean into the Black Sea: its water has a specific gravity of 1.02834, while that of the surface is 1.01534. The plane of contact of the two has a greater inclination towards the Black Sea: at Constantinople it is twenty metres under the surface; at the north-eastern end of the Bosphorus it is fifty metres deep. This is shown more in detail in the following table: —

Distance from Black Sea. Kilometres.	Contact plane. Metres.	Depth of water of sp.gr. 1.020.	Depth of water of sp. gr. 1.025.
0	50	45	49
9	43	39	42
20	36	33	37
23	42	25	27
29	20	25	24

There appears to be a variation in the depth of the contact plane with the seasons, but it is to be remembered that this depends on only one year's observations. At nine kilometres from the Black Sea, water of a specific gravity of 1.0225 was found in the middle of June at 43 metres; at the beginning of July, 41.5; end of July, 40.5; end of August, 34.7 metres. It is suggested that this variation depends on the height of the water in the Black Sea. The greater its height above that of the Sea of Marmora, the less the difference of pressure at the bottom of the strait, and thus the less cause for the deep counter-current. The velocity of the upper current is greatest at the surface; at the limit between the two currents, the two velocities just counteract each other; the maximum velocity of the lower stream is found at five and a half metres below this neutral surface. By considering the mean velocities and cross-sections of the two currents, it is estimated that the Bosphorus annually carries 152 cubic kilometres of water from the Black Sea.

MENTAL HYGIENE.

ONE important element that contributes to the high position that Germany occupies in the world of science is the existence of a large class of scientists devoted to a specialty, but with an intelligent and cultured interest in many topics lying more or less remotely outside their own branch. In this way an appreciative public is guaranteed for an 'atechnical' treatment (to use Hamerton's word) of one's own specialty. This is synonymous with the good sense of the word 'popular,' but it is the very opposite of much that goes by that name here. It is a concise and easy treatment of a subject, without neglecting the difficult points, or sifting out the interesting things to be served in a highly diluted form. Another enviable peculiarity of German science closely connected with the former is the ability to treat a subject from (there is no better word for it) a philosophic point of view; to bring it into relation with the questions that always have interested and always will interest mankind. As the physicians everywhere form the largest body of professional scientists, it is an especially enviable state of things when all this (as it is in Germany) is true of them. An excellent illustration of this fact is shown in this book by Dr. Schulz. He is writing upon his specialty in a perfectly clear and yet entirely scientific manner, feels confident of finding an appreciative public, and has shown an important connection between the teacher and the doctor.

The problem of civilization is to the alienist the problem of keeping sane. At no time was optimism so justifiable a faith as it is now. Comfort, liberty, philanthropy, education, and all the aids to happiness, are more wide-spread now than ever before. And yet we do not enjoy our happiness. Discontent is found everywhere. Why is this? Primitive man used muscle and nerve as his chief tools, just as we do; but formerly it was the muscle, now it is the nerve, that has the most to do. The work that modern culture demands is, above all, brain-work. The higher the civilization, the more the brain has to do. This delicate organ has become overtaxed. The onward march has been too rapid to give us time to get fully adapted to our surroundings, and an intense struggle for existence is the result. In this struggle many fail, and hence our age is called an 'age of nerves' (*nervöses Zeitalter*): hence the alarm-

Die Diätetik des Geistes. Von Dr. FRIEDERICH SCHULZ. Leipzig.

ing increase of nervous and mental diseases. Thus it is that the problem of keeping sane becomes the problem of civilization: civilization is the cause of mental weakness as well as the result of mental strength.

The two factors that have of late come into greatest prominence in this connection are the use of stimulants and the universal applicability of the laws of heredity. The fact that these come first is a sufficiently suggestive text to which the sermon can readily be added. Dr. Schulz looks forward to the time when these truths will be incorporated into social morality, and imprudent marriages be placed in the same category with criminality.

It is more true of nervous than of any other diseases, that the ideal to be aimed at is not so much to cure them as to prevent them. In the work of prevention it is the parent and the teacher who can do the most. The ancient phrase that calls the teacher the doctor of the mind is more than a metaphor. The doctor and the educator are at work upon the same problem. What the latter does is taking so much of a load from the shoulders of the former, and in the next generation the debt is repaid. And still more is this true of the parent. Our increased knowledge of nervous and mental diseases enables us to recognize their incipient stages when they can be checked from further development. That no one is perfectly sane is a commonplace. What it means is, that each one detects in himself latent tendencies in one direction or another, which, if they remain unchecked and are left to develop freely, would become morbid. A normal, rational life cures these tendencies of itself. They are absorbed in the growth of character. Yet it is very necessary to remember that our insane fellow-man is not made of different material from ourselves; he has simply elaborated one of the factors of life at the expense of all the others, and has thus lost his mental equilibrium: and it is also well for teachers to know as much of the nature of such tendencies as can be acquired from the reading of such a book as this.

The mental life of children presents problems peculiar to itself. We are beginning to take the step from the empirical to the scientific statement of these problems. We are learning to see things from the child's point of view; to appreciate how very intimate is its mental connection with its physical well-being; to know that education does not mean instruction; and, above all, the awful significance of that period of life when the boy or girl becomes a man or woman is recognized as the key to all higher character-building. Whatever may be said against the materialistic tendencies of our day in other directions, in the field of education it has introduced wonderful reforms. In the school-room it has banished the middle ages and rationalized methods.

Enough has probably been said to show the point of view from which mental unsoundness is treated in the works of which this is a good type. It is an anthropological study of brain-culture. It describes the morbid tendencies in mental development, and thus gives additional knowledge of the normal mind; and, finally, it brings the problems of modern civilization to a focus where they can be studied and practically thought out for the benefit of the races to come.

ECONOMICS, SCIENTIFIC AND POPULAR.

The economics of industry. By A. and M. P. MARSHALL. 3d ed. New York, Macmillan. 12°.

THE wide-spread interest in the prominent economical questions of the day has brought forth new editions of two English works which are in different ways most timely and useful. The 'Economics of industry' well deserves the honor of a third edition. As professing to solve the problem of distribution in a scientific manner, it is of course especially interesting in its bearing on the controversy now flagrant between the old and the new school of economic thought. The authors do not formally array themselves with either of the antagonists. By casting some of the most distinctive doctrines of the new school into a purely scientific form, they refute the charge that the modern theories remove economics from the category of sciences. On the other hand, they are far from rejecting the system and methods adopted by the great expounders of the old school. The purpose of the volume is expressly declared to be a completer development of the theory of value, wages, and profits as propounded by John Stuart Mill. It is well known that Mill was, of all the older school of economists, the least inclined to consider its conclusions absolute and final verity. Nothing could be more natural, therefore, than to use his work as the foundation for a more modern superstructure. Our authors contribute much, indeed, to the elucidation of the truth that the new economics, which its younger and more enthusiastic devotees are apt to hail as an inspired creation, is in reality only a growth. It is the flowering and the fruiting of the symmetrical but in many aspects repulsive stalk which has hitherto been all that the world could see of political economy.

The influence of the modern tendency manifests itself at the very outset by a broadening in the definition of the fundamental concepts of the science. Wealth, for example, is made to include